



**STRATEGY
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PROJECT**

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**NUCLEAR PROLIFERATION FROM THE FORMER
SOVIET UNION AND THE EFFECTS OF U.S.
ECONOMIC INCENTIVES**

BY

LIEUTENANT COLONEL CRAIG L. ZIMMERMAN
United States Army

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NUCLEAR PROLIFERATION FROM THE FORMER SOVIET UNION AND THE
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by

Lieutenant Colonel Craig L. Zimmerman
United States Army

Col Ed Ott
Project Adviser

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U.S. Army War College
Carlisle Barracks, Pennsylvania 17013

ABSTRACT

AUTHOR: Craig L. Zimmerman (LTC), USA

TITLE: Nuclear Proliferation from the Former Soviet Union and
the Effects of U.S. Economic Incentives

FORMAT: Strategy Research Project

DATE: 15 April 1995 PAGES: 27 CLASSIFICATION: Unclassified

This paper examines the United States' role in stemming nuclear proliferation from the states of the Former Soviet Union. Proliferation from the FSU is a critical danger to the world. Because of the breakdown of many of the security structures within the FSU which formerly ensured the safety of their weapons of mass destruction (WMD) and related material, the danger is very real. The implementation of the START treaties has also generated a great deal of excess fissile material. Because of the economic conditions in the FSU, there is rising crime concerning the sale and distribution of this material. Finally, this paper examines the U.S. role in decreasing the danger of nuclear catastrophe caused by the lack of control. The primary force used in this effort is the Cooperative Threat Reduction Act (CTR) - better known as the Nunn-Lugar Program - which was initiated in 1991 immediately after the failed coup attempt in Moscow. The paper examines in broad scope the types of efforts that CTR supports and gives examples of how that money is being spent. The paper takes the position that the CTR is extremely important to the vital interests of the United States. Recommendations are then given to enhance this vital program.

THE PROBLEM

Counter proliferation of weapons of mass destruction (WMD) has been a goal of the United States from the moment the world's first atomic bomb exploded over Japan in 1944. Since 1947, our major adversary in nuclear affairs has been the Soviet Union.

The United States has employed all elements of its national power to encourage other nations as well not to acquire nuclear weapons. A hall mark of this activity was the initial 1965 signing of the Nuclear Nonproliferation Treaty (NPT). This original agreement sought to limit the nuclear "club" to five nations: the United States, China, The Soviet Union, France, and Great Britain. The treaty provided for inspections for all of the voluntary signatories. Throughout the first twenty years of the NPT, most nations remained in compliance. As qualified by the original treaty, it was renewed in 1995, this time for an indefinite period. But the treaty negotiations were not perfect. The Arab states strongly protested Israel's refusal to renounce nuclear weapons. India and Pakistan's ownership raised questions. The "Rogue" states such as North Korea, Iran, and even Iraq raised serious doubts about the effectiveness of the NPT. The perceived nuclear threat was growing.

While the NPT was being discussed, several other treaties

were being implemented or negotiated. START I was in effect, and START II was almost concluded. These treaties were causing massive reductions in the nuclear weapon stockpiles of the United States and of the Former Soviet Union (FSU).

The term "Former Soviet Union" serves as the focal point for this research paper. The dissolution of the Soviet Union has raised a major problem. As the world moves toward further disarmament, the West's victory over the Communist East resulted in the creation of 15 newly independent states (NIS). Three of these - in addition to Russia - were armed with nuclear weapons: Belarus, Kazakhstan, and Ukraine. These three states have been enormously busy dealing with the provisions of the START treaties, trying to restructure their failed economies, and at the same time seeking to assert and maintain their independence from Russia.

Unfortunately, the dissolution of the Soviet Union and the failure of Communism did not, by any stretch of the imagination, end the East-West conflict. Anti-Western feeling is still strong among both ordinary Russians and the elite. Many of them believe two troubling propositions: They believed, as their system was collapsing, the U.S. promised massive aid, which encouraged them to continue to abandon the old ways. But this aid never

materialized. They also believed that the policy "help" we gave them was designed to cause further problems throughout the FSU.¹ This feeling of betrayal by the U.S. has given a significant amount of power to the activists and emerging nationalists.

START has had a dramatic effect on the numbers of weapons fielded by the superpowers. From a total of 65,000 warheads owned by the Soviet Union and the United States, START will lower this to only 3,000 for each country. The execution of the START provisions by Russia and, at least in part, by the three new nuclear powers at the same time that much turbulence was occurring throughout the FSU alerted the world to the newest nuclear threat: the acquisition of nuclear materials from the FSU by people or states who were willing to employ a nuclear device in pursuit of their own goals.

This paper will examine and clarify the actual proliferation threat posed by the nuclear materials in the FSU. It will describe actions taken by the United States Congress, either directly or through private industry, to lessen the threat, if not to eliminate it altogether. I will close with some recommendations which could enhance these actions and solidify our relations with the Former Soviet Union.

DEFINITION OF THE THREAT

State War

It is a vital U.S. interest that Russia, any member of the FSU, or any other state does not employ nuclear weapons against the United States. It is also a vital interest that efforts of nonproliferation are successful. Proliferation does not necessarily mean that a country acquires an intact nuclear weapon. Rather it indicates that a country is in the process of acquiring the fissionable material and the hardware to construct a nuclear weapon of some type. After a country acquires a weapon, it may be too late to prevent the country from stocking it and placing it in its arsenal. There are many means of inflicting nuclear damage other than delivering a nuclear bomb with an intercontinental ballistic missile. Perhaps delivery of a nuclear device by unconventional means currently represents the largest and more probable threat to U.S. security.

So the principal threat that has emerged from the breakup of the Soviet Union is the resulting decline in the security of nuclear weapons and particularly of related material. The dangers of nuclear materials falling into the hands of another state with unknown intentions are very real.

In late 1993, a Russian deputy chief engineer stole 4.5

kilograms of enriched uranium from the Sevmorput shipyard, a nuclear storage facility for the Russian Navy. The ensuing investigation determined that "potatoes were being guarded better" than the nuclear fuel stored there.²

War with Russia, although seemingly remote at this point, is still not completely out of the question. Although the break up has severely damaged the military power of Russia, some fear that Russia could resort to the only weapon they have left. I believe this is a remote threat, but not impossible, given the political unrest which may take years to settle.

Stateless War

Additionally, and probably more likely, there is a growing number of "stateless persons" who are operating without sanction of any nation or state. They pursue their own private and personal goals. They constitute the most dangerous threat, because these persons are totally outside of any authority. Identifying them and thwarting their potential use of nuclear weapons poses a daunting challenge. Whereas enlightened nations are learning to make their intent and capabilities transparent, the intentions and capabilities of rogue states and lone persons remain cloaked in fearful darkness.

How could the United States deter such a threat? Against whom would we retaliate? The conventional forms of deterrence fall far short of having any effect against such a threat. I believe it is this dark scenario which has prompted the United States to work so hard to contain the security problems within the FSU which could lead to proliferation.

The most likely threat, then, resides in the case of a nuclear weapon or sufficient nuclear material being spirited out of the FSU by persons who have the technological capability to prepare a weapon and the will to use it. Instances of this type of theft within the FSU are well documented. Enormous amounts of cash are available to anyone who can deliver any one of a variety of nuclear articles on the black market. Our own Federal Bureau of Investigation has been working with the Russian police in an undercover operation targeting Russian organized crime groups trying to sell nuclear material.³

How likely is the prospect of an activity like this resulting in a nuclear attack? Are missiles and bombs being transported to the enemies of the United States?

Marketing Nuclear Material

Within the FSU, there has been a soaring trade in

radioactive materials such as uranium, plutonium, cesium, and strontium. Nuclear crime was virtually unknown in the Soviet Union until it was close to collapse.⁴ Now a number of sources report that hundreds of thefts have occurred throughout the FSU at its industrial plants and institutions in the past few years.

Before we identify this as a problem of huge magnitude, we must question the validity of these numbers. In the process of the statistical tracking of any type of crime, it is normal to make the assumption that the actual number of crimes is larger than what is reported. That is, if the law enforcement agencies manage to apprehend a certain number of criminals engaged in an illegal activity, then an unknown additional percentage has probably occurred. This may be true in virtually all crimes, except perhaps this one. Because of the fear that most of the world shares about the problems of nuclear material within the FSU, an enormous amount of "sting" operations have been established by a variety of law enforcement agencies to nip this catastrophic problem in the bud. No one questions the fact that nuclear materials are being stolen: They are. Rather the question is a matter of what is happening to the material? Known "legitimate" buyers of stolen radioactive substances are few and far between.⁵ There has been no evidence, at least in

unclassified sources, that indicate any of the potential enemies of the West or any of the rogue states such as Iran, Iraq, or North Korea have been involved in the purchase of any of this material. Invariably the market consists of undercover police, intelligence operatives, or journalists who have made themselves available or have been approached by the cash-starved nuclear salesman. It appears that the sellers of nuclear material are having a hard time finding legitimate buyers with money for their product and with the intent of actually manufacturing nuclear explosives. Regardless, the material is being stolen.

What really is being stolen

Anything that is even loosely associated with the manufacture, maintenance, or operation of virtually anything nuclear is being stolen. The market has become a smorgasbord of things that can be identified as being part of the industry. Of the utmost importance is the determination of the potential danger this material represents. The facts may enlighten the reader. Material from nuclear weapons or the facilities that produce them has not appeared on the market. Most nuclear contraband is militarily useless. It requires substantial further enrichment or chemical reworking before it can be used to make a

weapon.⁶

In fact, the vast majority of fissionable material cannot be used to construct atomic weapons. "Weapons Grade" uranium is a highly processed material called "highly enriched uranium, (HEU)." Very little of the material on the market or being stolen is HEU. In its natural state, uranium contains about 1% of the isotope U-235, which is the actual fissionable material used to construct atomic weapons. Uranium for power plants contains a material which is enriched to about 4% of the U-235 isotope. Weapons grade uranium is about 90% U-235.⁷ The actual technology and associated hardware to perform this enrichment operation is still beyond the capabilities of the majority of countries in the world. Once, however, a supply of HEU has been obtained, the process for making a weapon of some type is relatively straight forward. Since the HEU appears to be the critical link in producing such a weapon, the goal of controlling it has become paramount to most Western nations. This had become a key element in the Administration's non proliferation policy.⁸

We are attempting to stop cash-poor Russia from selling surplus HEU to European nuclear energy operators. Aside from Nunn-Lugar money, the United States has offered to purchase 500 tons of HEU from the FSU. This HEU is surplus material from

dismantled nuclear weapons. Our goal is to keep the FSU from selling this HEU on the open market, in this case to operators of European nuclear power plants. The United States does not want to see this much of this type material on the open market. We have offered to the FSU \$12 billion for the material, which we will then blend down into a conventional fuel for nuclear reactors.

But another type of weapon could theoretically be made from reduced grade uranium. Following the World Trade Center explosion in New York City, the resulting investigation exposed a plot to trigger a number of explosions in highly populated areas. The fear was that even with a small amount of nuclear material or even nuclear waste, an explosion of the type set off in the World Trade Center could cause a massive radiation blanket to settle on a very large area. So a conventional bomb "enriched" with nuclear material would be the source of massive radiation.⁹

Western authorities must still take this threat seriously. If life for the citizens in Russia is becoming better, it is doing so at a very slow pace. The same driving factor is still present - the fight for survival. And to survive, Russians need money; money that can no longer be provided by the State. Criminals will get smarter with more experience and with every mistake they make. As with any new market, it takes time for it

to mature and stabilize and for the producer to deliver exactly what the customer needs. So we cannot minimize the long-term threat, even though the immediate threat seems slight.

MOTIVATION

Money for Individuals

What is the driving force behind the Russian citizen to sell something that is so dangerous and is being watched so closely? Of course, money. As the Russian economy struggles to reform itself in the face of widespread corruption and the growing Russian crime problem, the search for money is of the utmost importance for survival in a country where the state is incapable of providing even the most basic of needs for its citizens.

The first type of individual - and one of the most common type of sellers of nuclear material - is the scientist or related worker who handled these materials under the old Soviet Union. Formerly the cream of Soviet society, nuclear scientists now receive salaries as low as \$10 per month. Highly qualified specialists who worked on the State's nuclear secrets earn less than the cleaning women who work in the Moscow subway.¹⁰ As with our own citizens who have made deals with foreign countries, besides their need for money, these individuals are retaliating

for the way they are now being treated by the country they served.

And the once very proud Soviet military officer is also receiving virtually pennies for his labors and also having to live in unbelievable squalor, often separated from his family. Is it any wonder that the promise of money is too much to resist? It has become a fight for personal survival.

Russia's nuclear structure including manufacturing and administration, is virtually broken. All the factory workers are faced with losing their jobs. Crime and corruption is pervasive. The workers will accept any reasonable offer to look the other way.¹¹ Under such conditions, security simply does not exist.

Issues at the State level

Although world leaders have called upon Boris Yeltsin to ensure the security of the nuclear material within Russia, problems of an incredible magnitude may seriously undermine these efforts. Consider that in September of 1994, the regional electrical authority shut off the power to a military installation because of a failure to pay its bills. Further consider that this military installation happened to be the nation's Strategic Nuclear Missile Command Center.¹² This kind of

incident triggers a number of disastrous scenarios.

A more illustrative example concerns the Russian state-owned Mashinostroyenia - formerly one of Russia's most advanced and secretive military design bureaus. Although technically still profitable, other Russian institutions owe it enormous sums. To pay its bills, it has resorted to selling a space re-entry capsule and other historic artifacts at England's Sotheby's auction.¹³

U.S. ACTION

In August 1991, a signal event occurred in Russia. It was the month of the failed coup attempt in Moscow. The news reports and live television coverage painted a picture of a failed government and of nationwide anarchy. Once this catastrophe had been narrowly averted, the U.S. Congress spent a considerable amount of time debating the consequences of the collapse of a nuclear armed former adversary armed with a huge number of WMD. These debates led to the passage of the Soviet Cooperative Threat Reduction Act (CTR) - now better known as the Nunn-Lugar Act, named after its sponsors Senators Sam Nunn and Richard Lugar. This legislation is designed to accelerate existing arms control agreements, to consolidate former Soviet nuclear weapons in

Russia, and helps ensure their physical security and safety. The Department of Defense is a key player in assisting the FSU. DOD does not provide direct transfers of any monetary unit, it provides goods and services. CTR gave the Defense Department the authority to transfer up to \$400 million annually for three years to facilitate the "transportation, storage, and safeguarding and destruction of nuclear and other weapons in the Soviet Union . . . and to assist in the prevention of weapons proliferation."¹⁴

The CTR defines these functional areas: The first component is the destruction and dismantlement activities to do exactly that on nuclear weapons and associated infrastructure in the four nuclear FSU states; chain of custody activities attempt to decrease the dangers from nuclear weapons and fissile material; the demilitarization effort, which includes defense conversion, industrial partnerships, and job alternatives for former Soviet nuclear workers.

The problem is perceived to be both enormous and so extremely dangerous that we have taken this direct action to assist our former enemy in rectifying all of these problems with nuclear security. Our motivation is clear: We don't want anyone acquiring the capability to use such a weapon. Neither the choice

of cleaning up the remains of a nuclear accident - produced by stolen materials - or worse, falling victim to a nuclear explosion on our own shores is acceptable. The FSU has a similar motive. A weapon built or stolen from material from the FSU can be used against its former masters as well as against any other nation in the world.

We are not the only nation to feel this way. In April 1993, Japan pledged \$100 million to the FSU for dismantling nuclear weapons. Japan is working with all three of the nuclear countries to assist them in dismantling warheads, in treating nuclear waste, and in the constructing of secure nuclear storage facilities.¹⁵ Several other nations such as France, the United Kingdom, Canada, and more are participating in their own way to help the FSU - and themselves - in this critical area.

U.S. EXPENDITURES

The CTR program, however, is the major effort. This program has been extended each year since its initial passage in 1991. Congress has approved an identical amount each year (1996 is still pending although \$371 million is earmarked so far) and expanded its scope.

CTR now encompasses a variety of diverse projects

related to defense conversion, military-to-military contacts, environmental restoration, and even housing for former Strategic Rocket Forces personnel who have been displaced because of the success of the program. As of late 1994, a total of \$1.27 billion was available from fiscal year 1992 through 1995. We have reached agreement on 38 projects with Belarus, Kazakhstan, Russia, and Ukraine.

This program has led to a number of successes - and certainly to some failures. Among its successes, Nunn-Lugar helped pay for and arrange for the removal of 600 kilograms of highly enriched uranium from Kazakhstan to the United States, where it has been reprocessed. Nunn-Lugar is given the credit for both the discovery and subsequent removal of this material. Among its failures, the Nunn-Lugar brokered agreement to have all nuclear weapons removed from Ukraine to Russia has run into difficulties since Ukraine is still struggling with its own independence and especially in defining its relationship with Russia.

Nunn-Lugar money continues to flow into Russia in various ways. Defense Department money has paid for diesel fuel, gasoline, truck batteries, all-terrain jeeps, and radios to equip the convoys which were transporting nuclear material within the

FSU.¹⁶ By the end of 1994, the United States had delivered more than 7,500 different items as diverse as armored blankets, emergency response equipment, and rail car conversion kits to the FSU.¹⁷

A key component of the CTR is its provisions to involve U.S. industry by providing grant money to perform a number of functions within the FSU to assist in controlling nonproliferation. To enable the FSU nuclear powers to do the kinds of things that are necessary (such as accounting, dismantling, and securing its nuclear material), there are over 60 contracts in place as of January 1995 with private U.S. companies to provide services, equipment, and training, all costing a total of \$432 million.¹⁸

This is only the tip of the iceberg as far as direct aid to the Soviet Union. Unless otherwise noted, the following summary comes from the Bulletin of Atomic Scientists:

Russia: We have earmarked \$130 million to help Moscow accelerate its dismantlement of weapons earmarked by START 1. To support this effort, we delivered bulldozers, saws, torches, blades, and blow torches for obvious purposes. Total commitment to Russia is currently \$493 million¹⁹.

We are also very interested in the dismantlement of older

Soviet nuclear-armed submarines and bombers. Similar dismantling tools were sent to Russia at a cost of \$67 million of the total of \$130 million committed for this program.

Using a grant of \$10.7 million, the Harris Waste Management Company will build machines capable of turning Russian submarines into scrap metal. The contract calls for building machines to scrap 40 submarines. We will then give the machines to Russia, which will use them to form a scrap metal processing industry.²⁰

We have already spent \$15 million to help design a storage facility for dismantled warheads. Another \$75 million has been earmarked for the construction of the facility.

To help control their weapons, we have pledged \$30 million to be spent on alarms, seals, and monitoring systems. These will be installed or used at approximately 10 sites throughout Russia.

What can Russia do with over 4,000 scientists who formerly worked on nuclear weapons projects? The U.S. has agreed to spend \$41 million to employ these scientists in over 76 different peaceful projects.

Ukraine: In early 1994, the U.S. sent Ukraine large amounts of equipment designed to transport warheads back to Russia and to dismantle the remaining silos. Approximately \$70 million of the \$185 million committed had been spent when Ukraine reversed its

earlier policy decision of giving up all nuclear weapons.

Negotiations continue as money is still being committed to START reduction projects. For example, an American company received a contract to join with a Ukraine shipbuilding company to construct prefabricated housing for the displaced workers from ICBM bases. Ukraine has since signed a trilateral agreement with Russia and the United States. She is scheduled to be nuclear free by mid 1996.²¹

Belarus and Kazakhstan: Similar types of expenditures have been made in these two countries, although on a much reduced scale. In all, perhaps \$70 million has been spent to eliminate weapons from these two countries. This expenditure has been well worth it. In Kazakhstan alone there were 104 SS-18s, each with 10 independently targetable warheads.²² Kazakhstan is now nuclear free, although we are continuing to assist this country in removing the infrastructure and on related environmental issues. Belarus had approximately 81 SS-25s (road mobile ICBMs), now there are 36. Belarus should be nuclear free by the end of 1996.

As one of the key components to the Nunn-Lugar Act, the Defense Conversion program attempts to convert some of the Russian military industrial strength to the production of non-lethal products. This program is designed to provide incentives

to Russian workers to seek other kinds of work wherein they are adequately challenged and properly compensated. The program provides seed money to U.S. contractors, who then bid for contracts to convert portions of the FSU defense industry to civilian applications. Four such grants made in 1994 provided \$20 million. International American Products received a contract award to produce dental chairs with a St. Petersburg military avionics maker; Hearing Aids International will make hearing devices with a Moscow military-electronics factory; and Rockwell International will work with a military avionics institute to help develop a satellite-based air-traffic control network for Russia. The fourth award is causing some problems and may even jeopardize the program. The Double Cola Company from Tennessee has been awarded a contract to work with the premier of the old Soviet military hardware producer, Machinostroyenia. This has hurt the pride of the once-proud work force. Instead of gaining the trust and confidence of the Russian government and worker, it seems we are insulting them. Booz-Allen & Hamilton's vice president put it this way: "Imagine if the Russians took over Los Alamos to make baby diapers. American would be furious."²³

SUMMARY

I began this research project reasonably sure that the United States was being taken. I envisioned the FSU was out for a money grab, much as North Korea has done. My research has convinced me otherwise. According to the GAO report, none of the allocated money is sent directly to any country in the FSU. Rather it provides for seed money for private contractors, such as money to purchase equipment which is used directly in one of the three areas of the Nunn-Lugar Act: Destruction and Dismantlement, Chain of Custody, and Demilitarization. Although there have been, and continue to be, some problems in the implementation of the program, progress is being made. Many of the problems stem from the fact that the Newly Independent States are still discovering and transitioning into their statehood. Likewise, there is still considerable distrust of the West.

The key to any journey is to know where you are going. What are our objectives with the Nunn-Lugar program? Obviously, we want foremost to protect ourselves from a nuclear attack. Much of the Nunn-Lugar program supports the execution of the START treaties. But I believe that Nunn-Lugar goes far beyond this intermediate goal. It tackles something equally if not more important: assisting the FSU in developing a democratic and productive society. Then and only then will a measure of safety

be assured, regardless of their weapons status. Right now, we have a willing partner. The states of the NIS, and in particular Russia, Ukraine, and Belarus, recognize the enormous cost of the Cold War. They acknowledge that it became unaffordable. They too are searching for their peace dividend. They are currently willing to accept our offer of help in the elimination of these weapons. Equally important is their acceptance of our help in restructuring their economy. Congress has obviously recognized this, since they have also spent \$1.3 billion in "non-CTR aid." This money was taken from DOD and given to the United States Agency for International Development (USAID).²⁴

We must do better however, in monitoring the way that any money is spent. I am particularly concerned with our misguided contract to make soft drink production replace their Machinostroyenia, a former Soviet "crown jewel." I believe that such insensitivity can cause nothing but bad will at the very time we should be trying to win the hearts and minds of the formerly oppressed people of the NIS. This kind of unintentional incompetence can do nothing but provide ammunition for the rising nationalists, particularly in Russia. The tactics of waging peace are every bit as critical as the tactics of waging war. We cannot afford gross tactical errors. We must consider the second and

third order effects of our actions.

The once tremendously powerful states of the Soviet Union have given up an incredible amount of sovereignty to the United States. How can this group of nations not feel as devastated as if foreign soldiers had trampled their soil and occupied their cities?

We must remember that the Cooperative Threat Reduction Act is not considered foreign aid. Secretary of Defense Perry has called it "defense by other means." If this designation is accurate, then U.S. citizens are getting a bargain. We spent trillions of dollars over the course of the Cold War. Although we consider ourselves the victor, there is much to be done in the FSU to consolidate that victory. What is that end state? How are we defining victory? Victory will be final when the countries comprising the NIS have a democratic structure and have become productive players in the world's economic markets. Nowhere else can the U.S. policy of engagement and enlargement be more important.

I am very impressed with the amount of effort DOD is putting forth in forging ties with the FSU. We are building on our experience from around the world and implementing much of it with the FSU. Military to military contacts are increasing. U.S. Army

lawyers recently traveled to the Ukraine to help them produce their own code of military conduct.²⁵ Through the existing International Military Education and Training program, we have established language labs so that soldiers and officers can utilize English to take advantage of the vast amount of professional military literature and training.²⁶ For the first time, the old Soviet soldier is seeing that a professional military can and does exist under a democratic society. With each personal contact our Cold War adversaries are increasingly convinced that we do not want to conquer them. Transparency paves the way for genuine trust.

RECOMMENDATIONS

We must continue this program. We must do it in our own interest first, but also to make a huge step toward global peace. But we have to do it smarter. We must take the long term view and carefully examine the second and third order effects of each and every action and how they contribute toward the desired end state.

We must believe in this program. The policy toward the FSU fits ideally with our national goals. It is to the world's benefit to have a democratic and economically productive partner

in these states. It will take time - maybe even a long time - to overcome the period of communist decay. But success means that someday this group of nations will take its rightful place in the world. When this happens, it will serve our own interest for the people of these countries to remember that it was the United States who helped them in their time of need to finally rise out of hundreds of years of oppression. Keeping our own interests paramount, we must include Russia as a player in international politics. We must cultivate that relationship, despite our other global obligations. In fact, the best reason to pursue closer ties with this former enemy is to avoid more serious engagement there at a later time. We must also support the rest of the countries of the NIS, so that they grow together as a region.

The world is not yet a more kind or more gentle place. Allies in this part of the world will be assets. We cannot have enough true friends.

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